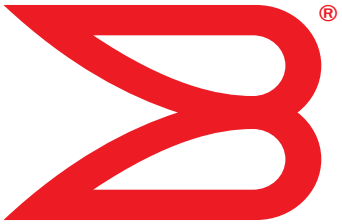
53-1003606-01
15 December 2014



Brocade IP Analytics Management Pack

for VMware vRealize Operations Management Suite

User's Guide

Version 1.0

BROCADE

Copyright © 2014 Brocade Communications Systems, Inc. All Rights Reserved.

Brocade, the B-wing symbol, Brocade Assurance, ADX, AnyIO, DCX, Fabric OS, FastIron, HyperEdge, ICX, MLX, MyBrocade, NetIron, OpenScript, VCS, VDX, and Vyatta are registered trademarks, and The Effortless Network and the On-Demand Data Center are trademarks of Brocade Communications Systems, Inc., in the United States and in other countries. Other brands and product names mentioned may be trademarks of others.

Notice: This document is for informational purposes only and does not set forth any warranty, expressed or implied, concerning any equipment, equipment feature, or service offered or to be offered by Brocade. Brocade reserves the right to make changes to this document at any time, without notice, and assumes no responsibility for its use. This informational document describes features that may not be currently available. Contact a Brocade sales office for information on feature and product availability. Export of technical data contained in this document may require an export license from the United States government.

The authors and Brocade Communications Systems, Inc. assume no liability or responsibility to any person or entity with respect to the accuracy of this document or any loss, cost, liability, or damages arising from the information contained herein or the computer programs that accompany it.

The product described by this document may contain “open source” software covered by the GNU General Public License or other open source license agreements. To find out which open source software is included in Brocade products, view the licensing terms applicable to the open source software, and obtain a copy of the programming source code, please visit *http://www.brocade.com/support/oscd*.

Brocade Communications Systems, Incorporated

Corporate and Latin American Headquarters
Brocade Communications Systems, Inc.
130 Holger Way
San Jose, CA 95134
Tel: 1-408-333-8000
Fax: 1-408-333-8101
E-mail: info@brocade.com

Asia-Pacific Headquarters
Brocade Communications Systems China HK, Ltd.
No. 1 Guanghua Road
Chao Yang District
Units 2718 and 2818
Beijing 100020, China
Tel: +8610 6588 8888
Fax: +8610 6588 9999
E-mail: china-info@brocade.com

European Headquarters
Brocade Communications Switzerland Sàrl
Centre Swissair
Tour B - 4ème étage
29, Route de l'Aéroport
Case Postale 105
CH-1215 Genève 15
Switzerland
Tel: +41 22 799 5640
Fax: +41 22 799 5641
E-mail: emea-info@brocade.com

Asia-Pacific Headquarters
Brocade Communications Systems Co., Ltd. (Shenzhen WFOE)
Citic Plaza
No. 233 Tian He Road North
Unit 1308 – 13th Floor
Guangzhou, China
Tel: +8620 3891 2000
Fax: +8620 3891 2111
E-mail: china-info@brocade.com

Document History

Title	Publication number	Summary of changes	Date
Brocade IP Analytics Management Pack for VMware vRealize Operations Management Suite User Manual	53-1003606-01	This is a new document.	December 2014

Contents

About This Document

In this chapter v
How this document is organized v
Supported software v
Supported hardware vi
What's new in this document vi
Document conventions vi
Text formatting vi
Notes, cautions, and warnings vii
Key terms vii
Notice to the reader vii
Additional information vii
Brocade resources vii
Other industry resources viii
Document feedback viii

Chapter 1 Installation

In this chapter 1
Overview 1
Brocade VCS Ethernet feature limitations 1
Installation 1
Software requirements 1
Configuring the VCS Ethernet credentials 2
Defining the discovery polling interval 3
Creating the adapter instance 3
Defining the default collection interval 4
VCS fabric split and merge scenarios 5

Chapter 2 Resources

In this chapter 7
Resources overview 7
Health Tree 7
VCS Fabric resources 7

VCS Node resources 8
VCS node metrics 8
Interface resources 9
Interface metrics 9

Chapter 3 Event Handling

In this chapter 11
VCS fabric and node events 11
Viewing alerts 13
Event handling configuration 13
Configuring vRealize Operations Manager for event handling . 13
Verifying alerts 14

Chapter 4 Brocade - IP Troubleshooting Dashboard

About This Document

In this chapter

- How this document is organized v
- Supported software v
- Supported hardware vi
- What's new in this document vi
- Document conventions vi
- Additional information vii
- Document feedback viii

How this document is organized

This document is organized to help you find the information that you want as quickly and easily as possible. This document supports the Brocade IP Analytics Management Pack for VMware vRealize Operations Management Suite.

The document contains the following components:

- Chapter 1, "Installation," provides installation requirements and instructions.
- Chapter 2, "Resources," provides information about the resources available for the Brocade IP Management adapter.
- Chapter 3, "Event Handling," provides information about the events that display and configuring event handling.
- Chapter 4, "Brocade - IP Troubleshooting Dashboard," provides using and create dashboards.

Supported software

The Brocade IP Analytics Management Pack for VMware vRealize Operations Management Suite is supported with the following software versions:

- Network OS 5.0 or later
- VMware vCenter Server 5.X or VMware vRealize Server 6.X
- vRealize Operations Manager 6.0 or later

Supported hardware

Table 1 lists the hardware platforms supported by this release of the Brocade IP Analytics Management Pack for VMware vRealize Operations Management Suite, as well as any specific firmware requirements.

TABLE 1 Network OS-supported hardware

Device name	Firmware level required
Brocade VDX 2740 switch	5.0 or later
Brocade VDX 6740 switch	5.0 or later
Brocade VDX 6740T switch	5.0 or later
Brocade VDX 6740T-1G switch	5.0 or later
Brocade VDX 8770 with 40G/10G Base-T/100G by line card	5.0 or later

What's new in this document

This is a new document.

Document conventions

This section describes text formatting conventions and important notice formats used in this document.

Text formatting

The narrative-text formatting conventions that are used are as follows:

bold text	Identifies command names Identifies the names of user-manipulated GUI elements Identifies keywords and operands Identifies text to enter at the GUI or CLI
italic text	Provides emphasis Identifies variables Identifies paths and Internet addresses Identifies document titles
`code` text	Identifies CLI output Identifies command syntax examples

For readability, command names in the narrative portions of this guide are presented in mixed lettercase: for example, **switchShow**. In actual examples, command lettercase is all lowercase.

Notes, cautions, and warnings

The following notices and statements are used in this manual. They are listed below in order of increasing severity of potential hazards.

NOTE
A note provides a tip, guidance, or advice, emphasizes important information, or provides a reference to related information.

ATTENTION
An Attention statement indicates potential damage to hardware or data.

Key terms

For definitions specific to Brocade and Fibre Channel, see the *Brocade Glossary*.

For definitions of SAN-specific terms, visit the Storage Networking Industry Association online dictionary at:

http://www.snia.org/education/dictionary

Notice to the reader

This document may contain references to the trademarks of the following corporations. These trademarks are the properties of their respective companies and corporations.

These references are made for informational purposes only.

Corporation	Referenced trademarks and products
VMware, Inc.	VMware

Additional information

This section lists additional Brocade and industry-specific documentation that you might find helpful.

Brocade resources

To get up-to-the-minute information, go to *http://my.brocade.com* to register at no cost for a user ID and password.

White papers, online demonstrations, and data sheets are available through the Brocade website at:

http://www.brocade.com/products-solutions/products/index.page

For additional Brocade documentation, visit the Brocade website:

http://www.brocade.com

Release notes are available on the MyBrocade website and are also bundled with the Fabric OS firmware.

Other industry resources

For additional resource information, visit the Technical Committee T11 website. This website provides interface standards for high-performance and mass storage applications for Fibre Channel, storage management, and other applications:

http://www.t11.org

For information about the Fibre Channel industry, visit the Fibre Channel Industry Association website:

http://www.fibrechannel.org

Document feedback

Quality is our first concern at Brocade and we have made every effort to ensure the accuracy and completeness of this document. However, if you find an error or an omission, or you think that a topic needs further development, we want to hear from you. Forward your feedback to:

documentation@brocade.com

Provide the title and version number of the document and as much detail as possible about your comment, including the topic heading and page number and your suggestions for improvement.

Chapter

1 Installation

In this chapter

- Overview 1
- Installation 1
- VCS fabric split and merge scenarios 5

Overview

You can use the Brocade IP Analytics Management Pack for VMware vRealize Operations Management Suite to collect VCS Ethernet fabric data (VCS node, interface, and metric data) from Brocade VCS devices (data source). Once collected, the system analyzes the data by learning the behavior of the data, checking the data, and correlating the data. The system then stores the data in a repository. Based on this output, the system sends alerts to other applications (such as, SMARTS, e-mail, and SNMP traps).

Brocade VCS Ethernet feature limitations

The following features are not supported in this release:

- VDX device in standalone mode
- Connected end device display
- FC ports
- IPv6
- More than one adapter instance

Installation

The Brocade IP Analytics Management Pack for VMware vRealize Operations Management Suite manages data from one or more Brocade VCS devices specified in the adapter. To install the adapter, refer to the VMware vRealize Adapter documentation.

Software requirements

- Network OS 5.0 or later
- VMware vCenter Server 5.X or VMware vRealize Server 6.X
- vRealize Operations Manager 6.0 or later

Configuring the VCS Ethernet credentials

Before you create the adapter instance, you must specify the IP address and credentials for the VCS Ethernet fabric. The VCS Ethernet fabric properties are specified in the ipDevice.properties file.

NOTE
The VCS Ethernet fabric IP address and credentials must match the device configuration.

1. Open the ipDevice.properties file in a a text editor (such as Notepad).

   The ipDevice.properties file is located in the /usr/lib/vmware-vcops/user/plugins/inbound/BrocadeIPAdapter/conf directory on the vRealize Operations Manager interface IP.

2. Configure the IP address and credentials for a VCS Ethernet fabric using the following format:

```
ipaddress.0=<IP_address1>,<IP_address2>
username.0=<username>
passwd.0=<password>
snmpversion.0=<SNMP version v1/v2/v3>
readCommunityString.0=<SNMP read community string>

ipaddress.1=<IP_address1>
username.1=<username>
passwd.1=<password>
snmpversion.1=<SNMP version v1/v2/v3>
readCommunityString.1=<SNMP read community string>
```

   If one or more VCS Ethernet fabrics have the same credentials, enter all appropriate IP addresses separated by commas to the same IP counter (for example, ipaddress.0=<IP_address1>,<IP_address2>).

   The first IP counters in the ipDevice.properties file should start with 0 and increment by 1 (for example, ipaddress.0, ipaddress.1, ipaddress.2, and so on).

   For SNMPv3, the following highlighted properties should be added

```
ipaddress.0=<ipAddress>
username.0=<Username>
passwd.0=<password>
snmpversion.0=v3
readCommunityString.0=public
snmpUsername.0=snmpadmin1
#SNMPV3 username
authenticationProtocol.0=<1 or 2 or 3 >
#[1(MD5)/2(SHA)/3(noAuth)]
authenticationPassword.0=<authentication password>
privacyProtocol.0=<1 or 2 or 4>
#[1(DES)/2(noPriv)/4(AES128)]
privacyPassword.0=<privacy password>
```

   NOTE
   The authentication password and privacy password must be a minumum of 8 characters.

3. Select **File > Save**.

   VCS fabrics are rediscovered every 15 minutes. Therefore, if you add a new IP address, the device displays in the vRealize Operation Manager interface after rediscovery (15 minutes). The discovery polling interval is specified in the ipDevice.properties file (refer to "Defining the discovery polling interval" on page 3).

Defining the discovery polling interval

The discovery polling interval is specified in the ipDevice.properties file. The default discovery polling interval is 15 minutes.

To define the discovery polling interval for an adapter instance, complete the following steps.

1. Open the ipDevice.properties file in a a text editor (such as Notepad).

   The ipDevice.properties file is located in the /usr/lib/vmware-vcops/user/plugins/inbound/BrocadeIPAdapter/conf directory on the vRealize Operations Manager interface IP.

2. Configure the discovery polling interval using the following format:

   ```
   discovery.polling.interval=3
   ```

3. Select **File > Save**.

Creating the adapter instance

You must add a Brocade IP Analytics Management Pack for VMware vRealize Operations Management Suite adapter instance in vRealize Operations Manager for each embedded adapter.

Before creating an adapter instance, make sure you meet the following requirements.

- Make sure to specify the VCS Ethernet Fabric IP address and credentials in the ipDevice.properties file (refer to "Configuring the VCS Ethernet credentials" on page 2).
- Make sure to specify the UDP port in the IP device properties (ipDevice.properties) and the firewall configuration (vcopsfirewall.conf) files (refer to "Configuring vRealize Operations Manager for event handling" on page 13).

To add the Brocade IP Analytics Management Pack for VMware vRealize Operations Management Suite adapter instance, complete the following steps.

1. Launch the vRealize Operations Manager custom user interface.
2. Enter your user credentials and click **Login**.

   NOTE
   You must have Administrator privileges.

3. In the left pane, click **Administration**, then click **Solutions**.

   The **Solutions** tab displays.

4. Click the **Add** icon.

   The **Add Solution** screen displays.

5. Click **Browse a solution**.

6. Select the PAK file and click **Open**.
7. Click **Upload**.
8. Click **Next**.
9. Read and accept the end user license agreement and click **Next**.
10. When installation is complete, click **Finish**.

    The **Solutions** tab displays with the Brocade IP Adapter PAK.
11. Select the Brocade IP Adapter PAK and click the **Configure** icon.

    The **Manage Solutions - Brocade IP Adapter** dialog box displays.
12. Type **Brocade IP Adapter** in the **Display name** field.
13. (Optional) Enter a description for the adapter in the **Descriptions** field.
14. Click **Save Settings**.

    Once created, the system queries the VCS Ethernet fabric data from the Brocade VCS devices every 3 collection cycles. By default, the collection cycle is set to 2 minutes in vRealize Operations Manager. Performance statistics are collected every collection cycle. To change the default collection interval, refer to "Defining the default collection interval" on page 4

Defining the default collection interval

To define the collection interval for an adapter instance, complete the following steps.

1. In the left pane of vRealize Operations Manager, click the **Administration** icon.
2. Click **Environment Overview** and expand **Adapter Instances** in the center pane.
3. Expand **Brocade IP Adapter Instance** and select the adapter name.
4. In the right pane, select the adapter name and click **Edit Object**.
5. Enter a new value for the **Collection Interval** (Minutes).

   The default collection interval is 2 minutes.
6. Click **OK**.

VCS fabric split and merge scenarios

The Brocade IP Analytics Management Pack for VMware vRealize Operations Management Suite uses one VCS node, called the principal node, to discover all other devices in a VCS fabric. If the principal node or any other node in the VCS fabric lose connectivity, segment, or becomes unreachable, one of the following actions may occur:

- VCS fabric split with both VCS fabrics managed by Brocade IP Analytics Management Pack

  This is a seamless operation. The Brocade IP Analytics Management Pack lists all resources in the Health Tree and Resource Detail screens. When a switch leaves Fabric A to join Fabric B and both Fabric A and B are managed by a single vRealize Operations adapter, all resources displayed with the parent child relations set appropriately.

- VCS node leaves a VCS fabric managed by Brocade IP Analytics Management Pack

  When a VCS node leaves the VCS fabric for any reason, the VCS node resource changes to an Unknown state in the vRealize Operations interface. The vRealize Operations interface maintains state of all collected resources, even when the resources no longer exists for a minimum of 3 weeks. Collected resources are purged every three weeks. In this case, the VCS node resource stays in the Unknown state until it is purged. If the VCS node resource merges with the VCS fabric, it changes back to a valid health state.

- VCS node joins a VCS fabric managed by Brocade IP Analytics Management Pack

  When a new VCS node joins a VCS fabric or a new VCS fabric is discovered, the new resources display in vRealize Operations interface with valid health states and relationships.

- VCS fabric splits and the new VCS fabric is not managed by Brocade IP Analytics Management Pack

  When a VCS node moves from Fabric A to Fabric B or when Fabric A splits into Fabric A and Fabric B and Fabric B is not managed by the Brocade IP Analytics Management Pack, all resources moved from Fabric A change to an unknown health state until purged (3 weeks).

- New principal node elected in the VCS fabric

  When the principal node for a VCS fabric changes and a new principal node is elected, the new VCS fabric resource, using the new principal node WWN as the key for the VCS fabric, displays in the Brocade IP Analytics Management Pack. The VCS fabric resource with the old principal node WWN changes to an Unknown health state until it is purged or becomes the principal node for the VCS fabric again.

- Principal node segments from the existing VCS fabric

  When a principal node segments from the fabric, the VCS fabric resource in the Brocade IP Analytics Management Pack remains the same. The VCS nodes that are not part of the new VCS fabric will be set to an unknown health state. The VCS nodes that are part of this VCS fabric will be set to a valid health state.

1 VCS fabric split and merge scenarios

Chapter

2

Resources

In this chapter

- Resources overview 7
- Health Tree 7
- VCS Fabric resources 7
- VCS Node resources 8
- Interface resources 9

Resources overview

A resource is an entity in your network for which the Brocade IP Analytics Management Pack for VMware vRealize Operations Management Suite collects data. A resource can be a VCS fabric, VCS node, or interface (such as, offline ports, online Edge ports, and online Fabric ports).

Health Tree

The health tree (**Object Relationship** widget) displays the relationship between various resources using a parent-child relationship. The VCS fabric resource is the parent for all VCS nodes that belong to the VCS fabric. Interfaces on the VCS node display as a metric group within a resource group on the VCS node resource.

VCS Fabric resources

The Brocade IP Analytics Management Pack for VMware vRealize Operations Management Suite collects the following data for a VCS fabric resource:

- VCS Fabric Name — The name of the VCS fabric.
- IP Address — The IP address of the principal switch or Logical IP address.
- Product Type — The fabric's product type, which is a Layer 2 switch.
- VCS Mode — The VCS mode of the switch,. The value is Enable if the device is a VCS Fabric or Disable if it is a standalone switch.
- VCS ID — The VCS ID configured in the fabric.
- Config Mode — The configuration mode of the fabric, which is Local Only for a management fabric and fabric.
- Node Count — The number of fabric nodes in the fabric.
- Principal Switch WWN — WWN of the Principal Switch

- Status — The health status of the switch.
- Vendor — The switch vendor (always Brocade).
- Model — The switch model type (VDX 6710, VDX 6720, or VDX 6730).
- Port Count — The number of ports on the switch.
- Firmware — The firmware version and build number.

VCS Node resources

VCS Node resources display as children of the VCS Fabric resource. The Brocade IP Analytics Management Pack for VMware vRealize Operations Management Suite collects the following data for a VCS node resource:

- VCS Fabric Name — The name of the VCS fabric member.
- IP Address — The IP address of the switch.
- System OID — The system's object identifier.
- Product Type — The fabric's product type, which is a Layer 2 switch.
- Serial # — The VCS fabric member's serial number.
- VCS Mode — The VCS mode of the switch. Displays Enable if the device is a VCS Fabric or Disable if it is a standalone switch.
- VCS ID — The VCS ID configured in the fabric.
- Config Mode — The configuration mode of the fabric, which is Local Only for a management fabric and fabric.
- RBridge ID — The routing bridge identifier associated with the VCS fabric member.
- Status — The health status of the switch.
- Vendor — The switch vendor (always Brocade).
- Model — The switch model type (VDX 6710, VDX 6720, or VDX 6730).
- Port Count — The number of ports on the switch.
- Firmware — The firmware version and build number.
- AG mode — Indicates whether Access gateway is enabled or not.
- MAC Address — The MAC address of the VCS node. The MAC address is the unique identifier for the VCS node resource.
- Multicast — Indicates whether multicast is enabled or disabled in the VCS node.

VCS node metrics

Click a VCS node in the Brocade IP Resources list to display the VCS node metrics in the Metric Picker widget. The Brocade IP Analytics Management Pack for VMware vRealize Operations Management Suite collects the following metrics for VCS node resources:

- CPU Usage (%) — The percentage of the node's CPU usage.
- Memory Usage (%) — The percentage of the node's Memory usage.

Interface resources

Interface resources display as children of the VCS Node resource. Interfaces are grouped into the following categories: Offline Ports, Online Edge Ports, and Online Fabric Ports. The Brocade IP Analytics Management Pack for VMware vRealize Operations Management Suite collects the name and metrics for an interface resource.

Interface metrics

The Brocade IP Analytics Management Pack for VMware vRealize Operations Management Suite collects the following metrics for interface resources:

- Tx (MB/sec) — The total number of megabytes transmitted from the point of time the counter was reset.
- Rx (MB/sec) — The total number of megabytes received from the point of time the counter was reset.
- Tx % Utilization — The percentage of data transmitted to the maximum amount of data that can be transmitted.
- Rx % Utilization — The percentage of data received to the maximum amount of data that can be received
- Tx Discard Packet — The number of outbound packets discarded even though no errors are detected to prevent transmission. One possible reason for discarding such a packet could be to free up buffer space.
- Rx Discard Packet — The number of inbound packets discarded even though no errors are detected to prevent their being deliverable to a higher-layer protocol. One possible reason for discarding such a packet could be to free up buffer space.
- Rx Error — The number of inbound packets that contained errors preventing them from being deliverable to a higher-layer protocol.
- Tx Error — The number of outbound packets not transmitted because of errors.
- Tx Octets Count — The total number of octets transmitted out of the interface.
- Rx Octets Count — The total number of octets received on the interface.
- Rx packet Count — The total number of packets received on the interface.
- Tx packet Count — The total number of packets transmitted out of the interface.

Double-click an interface metric to display the metric in the Metric Chart widget.

2 Interface resources

Chapter

3

Event Handling

In this chapter

- VCS fabric and node events 11
- Event handling configuration 13

VCS fabric and node events

The Brocade IP Analytics Management Pack for VMware vRealize Operations Management Suite displays SNMP events received from one or more VCS devices as alerts on the associated resource. These events are externally managed which means that the events remain outstanding until a cancellation event occurs. For example, an interface offline event cancels an earlier interface online event for the same interface within a VCS node resource and a Multicast enable event cancels an earlier disabled event. Before you can view event alerts, you must configure event handling for vRealize Operations Manager and VCS devices (refer to "Event handling configuration" on page 13).

Table 2 details the SNMP events sent to the Brocade IP adapter for VMware vRealize Operations Management Suite, the affected resource, event severity, event cause, and recommended action.

TABLE 2 VCS events

RASlog ID	Resource	Severity	Cause	Recommended action
FW-1426	Device	Warning	Indicates that the switch is not in a healthy state. This occurred because the number of faulty or missing power supplies is greater than or equal to the policy set by the switchStatusPolicySet command.	Replace the faulty or missing power supply.
FW-1427	Device	Warning	Indicates that the switch is not in a healthy state. This occurred because the number of faulty power supplies is greater than or equal to the policy set by the switchStatusPolicySet command.	Replace the faulty power supply.
FW-1428	Device	Warning	Indicates that the switch is not in a healthy state. This occurred because the number of missing power supplies is greater than or equal to the policy set by the switchStatusPolicySet command.	Replace the missing power supply.
FW-1430	Device	Warning	Indicates that the switch is not in a healthy state. This occurred because the number of faulty temperature sensors is greater than or equal to the policy set by the switchStatusPolicySet command. A temperature sensor is faulty when the sensor value is not in the acceptable range or is faulty.	Replace the faulty temperature sensor.

TABLE 2 VCS events

RASlog ID	Resource	Severity	Cause	Recommended action
FW-1431	Device	Warning	Indicates that the switch is not in a healthy state. This occurred because the number of faulty fans is greater than or equal to the policy set by the switchStatusPolicySet command. A fan is faulty when the value is not in the acceptable range or is faulty.	Replace the faulty or deteriorating fan.
FW-1432	Device	Warning	Indicates that the switch is not in a healthy state. This occurred because the number of faulty World Wide Name (WWN) cards is greater than or equal to the policy set by the switchStatusPolicySet command.	Replace the faulty WWN card.
FW-1433	Device	Warning	Indicates that the switch is not in a healthy state. This occurred because the number of faulty CPs is greater than or equal to the policy set by the switchStatusPolicySet command. The CPs are not redundant. If you power cycle a chassis in dual-domain configuration, and then reset the micro-switch of the active CP before the heartbeat is up, this will cause both CPs to come up in a non-redundant state.	Execute the firmware Show command to verify if both the CPs has compatible firmware levels. Execute the firmware Download command to install the same level of firmware to both CPs. Replace any faulty CPs. If you reset the micro-switch (the latch on the CP blade) on the active CP before the heartbeat was up on a power cycle, and the CPs came up non-redundant, then you should reboot the CPs again to clear the problem.
FW-1434	Device	Warning	Indicates that the switch is not in a healthy state. This occurred because the number of blade failures is greater than or equal to the policy set by the switchStatusPolicySet command.	Replace the faulty blade.
FW-1435	Device	Warning	Indicates that the switch is not in a healthy state. This occurred because the flash memory usage is out of range. The policy was set using the switchStatusPolicySet command.	Execute the support Save command to clear out the kernel flash.
FW-1531	Device	Warning	Indicates that the number of c3 discard frames has exceeded the threshold limit set by the switchStatusPolicySet command.	Check the target device for delays.
NSM-1019	Interface	Info	Indicates that the administrative status of the specified interface has changed to Up.	No action is required.
NSM-1020	Interface	Warning	Indicates that the administrative status of the specified interface has changed to Down.	Enable the interfaces.
VCS-1004	VCS node	Error	Indicates that a logical-chassis node failed to be added to the VCS cluster.	1 LC Node Running-config is in mismatch with VCS cluster. 2 R-Bridge ID conflict.
ZONE-1036	Zone	Error	Indicates that the Network OS cannot create the zone configuration file. Typically, the zone configuration is too large for the memory available on the switch.	Reduce ZoneDB Memory to add a new Zone configuration.
N/A	Multicast	Warning	Multicast is disabled on this product.	Enable multicast on the product.
N/A	Multicast	Info	Multicast is enabled on this product.	No action is required.

Viewing alerts

1. Select **Dashboard > Brocade - IP Troubleshooting**.
2. Click a VCS fabric in the **Brocade IP Resources** widget to display the VCS nodes specific to the fabric in the **Object Relationship** widget.
3. Click a VCS node in the **Object Relationship** widget to display the alerts specific to the fabric or node in the **Alerts** widget.
4. Review the alerts.

   Table 2 details the SNMP events sent to the Brocade IP adapter for VMware vRealize Operations Management Suite, the affected resource, event severity, event cause, and recommended action.

Event handling configuration

You must configure vRealize Operations Manager and Brocade VCS devices to enable event handling so that the adapter receives events from Brocade VCS devices and displays the events in vRealize Operations Manager. You should also make sure that devices are configured to send traps to the Brocade IP adapter.

Configuring vRealize Operations Manager for event handling

You must configure the UDP port in the IP device properties (ipDevice.properties) and the firewall configuration (vcopsfirewall.conf) files on the vRealize Operations Manager interface IP.

1. Open the ipDevice.properties file in a a text editor (such as Notepad).

   The ipDevice.properties file is located in the /usr/lib/vmware-vcops/user/plugins/inbound/BrocadeIPAdapter/conf directory on the vRealize Operations Manager interface IP.
2. Add the SNMP trap receiver port number using the following format:

   ```
   snmptrap.receiver.portNumber=16201
   ```

   The default SNMP trap receiver port is 16201.
3. Select **File > Save**.
4. Open the vcopsfirewall.conf file in a text editor (such as Notepad).

   The vcopsfirewall.conf file is located in the /usr/lib/vmware-vcops/user/conf/install/ directory on the vRealize Operations Manager interface IP.
5. Add the UDP port numbers (any number where socket can be opened) using the following format:

   ```
   UDPPORTS="$UDPPORTS 16201"
   ```

   The default UDP port is 16201.
6. Select **File > Save**.
7. Launch the vRealize Operations Manager custom user interface.

8. Enter your user credentials and click **Login**.

NOTE
You must have Administrator privileges.

9. In the left pane, click **Administration**, then click **Cluster Management**.

   The **Cluster Management** tab displays.

10. Take the node offline by clicking the **Take Node Offline/Online** icon in the **Nodes in the vRealize Operations Manager Cluster** area.
11. Bring the node online by clicking the **Take Node Offline/Online** icon in the **Nodes in the vRealize Operations Manager Cluster** area.

Verifying alerts

When you complete configuration of vRealize Operations Manager and any VCS devices for event handling, generate events in the VCS device to verify the alerts in the vRealize Operations Manager interface.

Chapter

Brocade - IP Troubleshooting Dashboard

4

The Brocade IP Analytics Management Pack for VMware vRealize Operations Management Suite comes with a custom dashboard for troubleshooting. You can access these dashboards from the Dashboards menu. To view a dashboard, select **Dashboard > Brocade - IP Troubleshooting**.

The **Brocade - IP Troubleshooting** dashboard contains the following widgets:

- **Brocade IP Resources** widget — This widget displays all VCS fabric and node resources collected by the adapter. Select a resource in this widget to populate the **Object Relationship** widget.
- **Object Relationship** widget — This widget displays the relationship of the selected resource to other resources in the VCS fabric. Select a resource in this widget to populate the **Alerts**, **Metric Picker**, and **Property List** widgets.
- **Metric Picker** widget — This widget displays the metrics available for the resource selected in the **Object Relationship** widget. Select a resource in this widget to populate the **Metric Graph** widget.
- **Metric Chart** widget — This widget shows graphs for the metric selected in the **Metric Picker** widget.
- **Alerts** widget — This widget displays outstanding alerts for the resource selected in the **Object Relationship** widget.
- **Property List** widget — This widget displays the properties of the resource selected in the **Object Relationship** widget.